PATENT APPLICATION

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicants: Hideo SANO et al

For: METHOD OF MANUFACTURING HIGH-STRENGTH ALUMINUM ALLOY EXTRUDED PRODUCT EXCELLING IN CORROSION RESISTANCE AND STRESS CORROSION CRACKING RESISTANCE

Serial No.: 10/666 216 Group: 1793

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Commissioner for Patents
P.O. Box 1450
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DECLARATION UNDER 37 CFR 1.132

I, Hideo SANO, hereby declare as follows:

I am one of the inventors of the invention described and claimed in application Serial No. 10/666 216, filed on September 18, 2003.

I hereby incorporate by reference herein the contents of the Examples and Comparative Examples contained in application Serial No. 10/666 216 and the 37 CFR 1.132 Declaration executed by me on September 20, 2007.

I have performed additional test data that illustrates that the presence of iron reduces the corrosion resistance in the aluminum alloy extruded products of the present invention.

Aluminum alloys having the compositions shown in Table 1 below were prepared.

Table 1

Alloy	Composition (wt%)					
	Si	Fe	Mg	Cu	Mn	Cr
A	0.9	0.1	1.0	1.7	0.8	0.2
B	0.9	0.2	1.0	1.7	0.8	0.2
C	0.9	0.4	1.0	1.7	0.8	0.2

Aluminum alloys A, B and C were cast by semi-continuous casting to prepare billets with a diameter of 100mm. The billets were homogenized at 530°C for 8 hours, and cooled from 530° to 250°C at an average cooling rate of 250°C/h to prepare extrusion billets.

The extrusion billets were heated to 520°C and extruded by using a solid die at an extrusion ratio of 27 and an extrusion speed of 6m/min to obtain a solid extruded product having a rectangular profile of 12mm thickness by 24mm width. The solid die had a bearing length of 6mm and the corners of its orifice were rounded off with a radius of 0.5mm. A flow guide attached to the die had a rectangular guide hole with a distance (A) from the inner circumferential surface of the guide hole to the outer circumferential surface of the orifice set at 12mm, and a thickness (B) of the flow guide set at 15mm with respect to the billet diameter of 100mm (B=15% of the billet diameter).

The solid extruded products thus obtained were subjected to a solution heat treatment at 540°C, and to a water quenching treatment within 10 seconds of the solution heat treatment. After 8 days from completion of the quenching, an artificial ageing (tempering) was provided at 175°C for 8 hours to refine the quenched product to T6 temper.

T6 materials (specimens) were evaluated by (1) a measurement of the area ratio of a fibrous structure in the transverse cross-section, (2) a tensile test, and (3) an intergranular corrosion test described below.

(1) Measurement of area ratio of fibrous structure: The area ratio of a fibrous structure in the transverse cross section was measured by using image analysis equipment and its ratio (%) to the total area was calculated.

(2) Tensile test: Each specimen was tested in accordance with JIS Z2241 for ultimate tensile strength (UTS), yield strength (YS), and facture elongation (δ).

(3) Intergranular corrosion test: A test solution was prepared by dissolving 57 grams of sodium chloride (NaCl) and

10 ml of 30% aqueous hydrogen peroxide (H_2O_2) into distilled water to make a total of 1 liter solution. Each specimen was immersed in the test solution at 30°C for 6 hours, and the corrosion weight loss was measured. A specimen showing a weight loss of less than 1.0% was judged as having good corrosion resistance. The evaluation is same as that of the Examples in the specification of the present invention.

The evaluation results are summarized in Table 2.

Table 2

Specimen	Alloy	Area ratio of fibrous structure (%)	UTS (MPa)	YS (MPa)	δ (%)	Corrosion weight loss (%)
1	A	82	441	403	12	0.4
2	B	83	442	405	11	0.6
3	C	83	438	402	12	1.2

DISCUSSION OF RESULTS

As shown in Table 2, the specimen 1 containing Fe:0:1% and the specimen containing Fe:0.2% had Area ratio of fibrous structure over 80% and were provided with good tensile property. The specimens 1 and 2 showed Corrosion weight loss of less than 1.0%, and it was confirmed that there is no problem of corrosion resistance. On the other hand, Corrosion weight loss of the specimen containing Fe:0.4% over 0.2% was 1.2%, and it was found that there was problem of corrosion resistance. As a result, it is confirmed that Fe content as impurity does not have any influence on corrosion resistance, but Fe content over 0.2% decreases corrosion resistance. That is, the aluminum alloy extruded product of the present invention containing Fe only as impurity has no problem of corrosion resistance, but the aluminum alloy extruded product of JP '358 in which Fe is essential alloying element, has a problem of corrosion resistance.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that

willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: December 22, 2008

Hideo Sano

Hideo SANO

2163.05 Changes to the Scope of Claims [R-2] - 2100 Patentability

2163.05 Changes to the Scope of Claims [R-2]

The failure to meet the written description requirement of **35 U.S.C. 112**, first paragraph, commonly arises when the claims are changed after filing to either broaden or narrow the breadth of the claim limitations, or to alter a numerical range limitation or to use claim language which is not synonymous with the terminology used in the original disclosure. To comply with the written description requirement of 35 U.S.C. **112**, para. 1, or to be entitled to an earlier priority date or filing date under 35 U.S.C. **119**, **120**, or **365(c)**, each claim limitation must be expressly, implicitly, or inherently supported in the originally filed disclosure. See MPEP § **2163** for examination guidelines pertaining to the written description requirement.

I. BROADENING CLAIM

Omission of a Limitation

Under certain circumstances, omission of a limitation can raise an issue regarding whether the inventor had possession of a broader, more generic invention. See, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 45 USPQ2d 1498 (Fed. Cir. 1998) (claims to a sectional sofa comprising, *inter alia*, a console and a control means were held invalid for failing to satisfy the written description requirement where the claims were broadened by removing the location of the control means.); *Johnson Worldwide Associates v. Zebco Corp.*, 175 F.3d 985, 993, 50 USPQ2d 1607, 1613 (Fed. Cir. 1999) (In *Gentry Gallery*, the "court's determination that the patent disclosure did not support a broad meaning for the disputed claim terms was premised on clear statements in the written description that described the location of a claim element--the 'control means'--as 'the only possible location' and that variations were 'outside the stated purpose of the invention.' *Gentry Gallery*, 134 F.3d at 1479, 45 USPQ2d at 1503. *Gentry Gallery*, then, considers the situation where the patent's disclosure makes crystal clear that a particular (i.e., narrow) understanding of a claim term is an 'essential element of [the inventor's] invention.'"); *Tronzo v. Biomet*, 156 F.3d at 1158-59, 47 USPQ2d at 1833 (Fed. Cir. 1998) (claims to generic cup shape were not entitled to filing date of parent application which disclosed "conical cup" in view of the disclosure of the parent application stating the advantages and importance of the conical shape.); *In re Wilder*, 736 F.2d 1516, 222 USPQ 369 (Fed. Cir. 1984) (reissue claim omitting "in

synchronism" limitation with respect to scanning means and indexing means was not supported by the original patent's disclosure in such a way as to indicate possession, as of the original filing date, of that generic invention.).

A claim that omits an element which applicant describes as an essential or critical feature of the invention originally disclosed does not comply with the written description requirement. See *Gentry Gallery*, 134 F.3d at 1480, 45 USPQ2d at 1503; *In re Sus*, 306 F.2d 494, 504, 134 USPQ 301, 309 (CCPA 1962) ("[O]ne skilled in this art would not be taught by the written description of the invention in the specification that any 'aryl or substituted aryl radical' would be suitable for the purposes of the invention but rather that only certain aryl radicals and certain specifically substituted aryl radicals [i.e., aryl azides] would be suitable for such purposes.") (emphasis in original). Compare *In re Peters*, 723 F.2d 891, 221 USPQ 952 (Fed. Cir. 1983) (In a reissue application, a claim to a display device was broadened by removing the limitations directed to the specific tapered shape of the tips without violating the written description requirement. The shape limitation was considered to be unnecessary since the specification, as filed, did not describe the tapered shape as essential or critical to the operation or patentability of the claim.). A claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may also be subject to rejection under 35 U.S.C. **112**, para. 1, as not enabling, or under 35 U.S.C. **112**, para. 2. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976); *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976); and *In re Collier*, 397 F.2d 1003, 158 USPQ 266 (CCPA 1968). See also MPEP § **2172.01**.

Addition of Generic Claim

The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species. A "representative number of species" means that the species which are adequately described are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus. >The disclosure of only one species encompassed within a genus adequately describes a claim directed to that genus only if the disclosure "indicates that the patentee has invented species sufficient to constitute the gen[us]." See *Enzo Biochem*, 323 F.3d at 966, 63 USPQ2d at 1615. "A patentee will not be deemed to have invented species sufficient to constitute the genus by virtue of having disclosed a single species when . the evidence indicates ordinary artisans could not predict the operability in the invention of any species other than the one disclosed." *In re Curtis*, 354 F.3d 1347, 1358, 69 USPQ2d 1274, 1282 (Fed. Cir. 2004) (Claims directed to PTFE dental floss with a friction-enhancing coating were not supported by a disclosure of a microcrystalline wax coating where there was no evidence in the disclosure or anywhere else in the record showing applicant conveyed that any other coating was suitable for a PTFE dental floss.)< On the other hand, there may be situations where one species adequately supports a genus. See, e.g., *In re Rasmussen*, 650 F.2d 1212, 1214, 211 USPQ 323, 326-27 (CCPA 1981) (disclosure of a single method of adheringly applying one layer to another was sufficient to support a generic claim to "adheringly applying" because one skilled in the art reading the specification would understand that it is unimportant how the layers are adhered, so long as they are adhered); *In re*

Herschler, 591 F.2d 693, 697, 200 USPQ 711, 714 (CCPA 1979) (disclosure of corticosteriod in DMSO sufficient to support claims drawn to a method of using a mixture of a "physiologically active steroid" and DMSO because "use of known chemical compounds in a manner auxiliary to the invention must have a corresponding written description only so specific as to lead one having ordinary skill in the art to that class of compounds. Occasionally, a functional recitation of those known compounds in the specification may be sufficient as that description."); *In re Smythe*, 480 F.2d 1376, 1383, 178 USPQ 279, 285 (CCPA 1973) (the phrase "air or other gas which is inert to the liquid" was sufficient to support a claim to "inert fluid media" because the description of the properties and functions of the air or other gas segmentizing medium would suggest to a person skilled in the art that appellant's invention includes the use of "inert fluid" broadly.). However, in *Tronzo v. Biomet*, 156 F.3d 1154, 1159, 47 USPQ2d 1829, 1833 (Fed. Cir. 1998), the disclosure of a species in the parent application did not suffice to provide written description support for the genus in the child application. Similarly, see *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989) (generic and subgeneric claims in the U.S. application were not entitled to the benefit of foreign priority where the foreign application disclosed only two of the species encompassed by the broad generic claim and the subgeneric Markush claim that encompassed 21 compounds).

II. NARROWING OR SUBGENERIC CLAIM

The introduction of claim changes which involve narrowing the claims by introducing elements or limitations which are not supported by the as-filed disclosure is a violation of the written description requirement of **35 U.S.C. 112**, first paragraph. See, e.g., *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571, 39 USPQ2d 1895, 1905 (Fed. Cir. 1996) (a "laundry list" disclosure of every possible moiety does not constitute a written description of every species in a genus because it would not "reasonably lead" those skilled in the art to any particular species); *In re Ruschig*, 379 F.2d 990, 995, 154 USPQ 118, 123 (CCPA 1967) ("*If* n-propylamine had been used in making the compound instead of n-butylamine, the compound of claim 13 would have resulted. Appellants submit to us, as they did to the board, an imaginary specific example patterned on specific example 6 by which the above butyl compound is made so that we can see what a simple change would have resulted in a specific supporting disclosure being present in the present specification. The trouble is that there is no such disclosure, easy though it is to imagine it.") (emphasis in original). In *Ex parte Ohshiro*, 14 USPQ2d 1750 (Bd. Pat. App. & Inter. 1989), the Board affirmed the rejection under **35 U.S.C. 112**, first paragraph, of claims to an internal combustion engine which recited "at least one of said piston and said cylinder (head) having a recessed channel." The Board held that the application which disclosed a cylinder head with a recessed channel and a piston without a recessed channel did not specifically disclose the "species" of a channeled piston.

While these and other cases find that recitation of an undisclosed species may violate the description requirement, a change involving subgeneric terminology may or may not be acceptable. Applicant was not entitled to the benefit of a parent filing date when the claim was directed to a subgenus (a specified range of molecular weight ratios) where the parent application contained a generic disclosure and a

specific example that fell within the recited range because the court held that subgenus range was not described in the parent application. *In re Lukach*, 442 F.2d 967, 169 USPQ 795 (CCPA 1971). On the other hand, in *Ex parte Sorenson*, 3 USPQ2d 1462 (Bd. Pat. App. & Inter. 1987), the subgeneric language of "aliphatic carboxylic acid" and "aryl carboxylic acid" did not violate the written description requirement because species falling within each subgenus were disclosed as well as the generic carboxylic acid. See also *In re Smith*, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972) ("Whatever may be the viability of an inductive-deductive approach to arriving at a claimed subgenus, it cannot be said that such a subgenus is necessarily described by a genus encompassing it and a species upon which it reads." (emphasis added)). Each case must be decided on its own facts in terms of what is reasonably communicated to those skilled in the art. *In re Wilder*, 736 F.2d 1516, 1520, 222 USPQ 369, 372 (Fed. Cir. 1984).

III. RANGE LIMITATIONS

With respect to changing numerical range limitations, the analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure. In the decision in *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), the ranges described in the original specification included a range of "25%- 60%" and specific examples of "36%" and "50%." A corresponding new claim limitation to "at least 35%" did not meet the description requirement because the phrase "at least" had no upper limit and caused the claim to read literally on embodiments outside the "25% to 60%" range, however a limitation to "between 35% and 60%" did meet the description requirement.

See also *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1328, 56 USPQ2d 1481, 1487 (Fed. Cir. 2000) ("[T]he specification does not clearly disclose to the skilled artisan that the inventors... considered the... ratio to be part of their invention.... There is therefore no force to Purdue's argument that the written description requirement was satisfied because the disclosure revealed a broad invention from which the [later-filed] claims carved out a patentable portion"). Compare *Union Oil of Cal. v. Atlantic Richfield Co.*, 208 F.3d 989, 997, 54 USPQ2d 1227, 1232-33 (Fed. Cir. 2000) (Description in terms of ranges of chemical properties which work in combination with ranges of other chemical properties to produce an automotive gasoline that reduces emissions was found to provide an adequate written description even though the exact chemical components of each combination were not disclosed and the specification did not disclose any distinct embodiments corresponding to any claim at issue. "[T]he Patent Act and this court's case law require only sufficient description to show one of skill in the . . . art that the inventor possessed the claimed invention at the time of filing.").

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